REMARKS

In the Office Action mailed March 22, 2006 (hereinafter, the "Office Action"), Claims 1 and 4-21 were pending for consideration with claims 2-3 and 22-30 being withdrawn from consideration. Of these, Claims 1, 4-15, and 20-21 were rejected as allegedly either anticipated or obvious under 35 U.S.C. §§ 102(e) and 103(a), respectively. Each of these rejections is addressed in turn below. Claims 1, 4-15 and 20-21 remain pending for consideration in the present application, and reconsideration thereof is respectfully requested.

Rejections Under 35 U.S.C. § 102(b)

Rejection under Ishikawa

Claims 1, 4, 7, 11, and 20-21 were rejected as allegedly anticipated by PCT Patent Publication No. WO 01/48816 to Ishikawa et al. (hereinafter "Ishikawa"). Other than the abstract, this entire document is in Japanese. Applicant thanks the Examiner for the English translation provided electronically.

Ishikawa fails to anticipate the claimed invention for the same reasons provided below with respect to Hall. Specifically, Ishikawa appears to teach forming a "porous sintered body." The pores of the porous sintered body are then filled with a molten metal to form the heat sink. See page 4 and especially page 7, second paragraph of the translation. In the disclosed embodiments of Ishikawa, the porous sintered body is formed first. As such, the carbon particles (preferably graphite and optionally diamond) are bonded by direct sintering of particles. Following the preparation of the porous sintered body, a molten metal is infiltrated into the pores. The molten metal is introduced after the carbon particles are sintered. Therefore, the molten metal cannot bond particles which are

already sintered together. Thus, it is clear that any diamond particles are bonded by sintering and not by the molten metal in Ishikawa. Applicant asserts that a fully sintered polycrystalline diamond article is bonded by diamond-diamond sintering and the presence of any other second material is irrelevant to bonding of the diamond particles whether the polycrystalline mass is non-porous, slightly porous or highly porous – it is still bonded by direct diamond to diamond sintering.

Ishikawa fails to teach each and every element of the claimed invention, e.g. "bonding the packed diamond particles by the interstitial material." Ishikawa does not teach packed diamond particles, rather a sintered porous mass. Further, the Ishikawa reference does not teach an interstitial material which is used in bonding the particles together in the final product. Therefore, Applicant respectfully requests that the rejection based on Ishikawa be withdrawn.

Rejection under the Hall Reference

Claims 1, 4, 11-14, and 20 were rejected as allegedly anticipated by United States Patent Publication No. 2002/0023733 to Hall (hereinafter "Hall").

Claim 1 requires that the interstitial material is the mechanism by which the diamond particles are bonded to one another, i.e. "bonding the packed diamond particles by the interstitial material." In Applicant's previous response it was noted that the Hall reference discloses Cu and Al as "bondable materials." See Response filed Feb. 27, 2006, page 8. The Office has responded that Hall teaches "that some of the copper and cobalt that are infiltrated in the diamond mass remain in the matrix to strengthen the bond between the diamond and the copper layer which is formed on the opposite surface of the matrix." See Office Action mailed March 22, 2006, page 7, paragraph 26. However, rather than supporting the rejection, this statement illustrates Applicant's contrary

argument very clearly. Specifically, as noted by the Examiner, any copper which remains in the matrix strengthens the bond between the diamond and the copper layer, rather than between diamond particles. The claimed invention requires "bonding the packed diamond particles by the interstitial material." In this way, the claimed composite heat spreader is bonded or held together primarily by the interstitial material and not by sintered diamond-diamond bonding.

The fully sintered polycrystalline diamond of Hall is clearly not bonded by the copper. In fact, the diamonds in Hall are clearly "intergrown into a unified matrix" and the "diamond crystals are intergrown...their boundaries are intimately merged creating an uninterrupted thermal path." See paragraphs 0009 and 0017. Thus, Hall diamond particles are bonded by strong diamond to diamond intergrowth via sintering. Throughout Hall it is clear that the diamond particles sinter to form a polycrystalline mass and the copper is used as a bondable layer for convenient and high thermal conductivity attachment to a desired electronic device. As a result Hall cannot be said to teach "bonding the packed diamond particles by the interstitial material" as claimed.

As the Hall reference fails to teach or suggest the claimed interstitial materials which are also used to bond the diamond particles it also fails to anticipate the claimed invention. Therefore, Applicant respectfully submits that the Hall reference does not teach the claimed invention and requests that the rejections based thereon be withdrawn.

Rejections Under 35 U.S.C. § 103(a) based on Hall

Hall in view of Sung

Claims 5 and 6 were rejected as allegedly obvious over Hall in view of U.S. Patent No. 6,193,770 (hereinafter, "Sung"). Neither Hall nor Sung teach or suggest "bonding the packed

diamond particles by the interstitial material" as claimed for the same reasons provided above with respect to Hall. Regardless, Applicant respectfully submits that this rejection is moot in light of the above discussion regarding the patentability of independent Claim 1.

Hall in view of Vereschagin

Claims 5-6 and 8-10 were rejected as allegedly obvious over Hall in view of U.S. Patent No. 1,382,080 (hereinafter, "Vereschagin"). Applicant respectfully submits that this rejection is moot in light of the remarks above regarding the underlying independent Claim 1. Applicant respectfully requests that the rejections be withdrawn and the claims be passed to issue.

CONCLUSION

In view of the foregoing, Applicant believes that presently pending Claims 1, 4-15 and 20-21 present allowable subject matter and allowance is respectfully requested. If any impediment to the allowance of these claims remains after consideration of the above remarks, and such impediment could be resolved during a telephone interview, the Examiner is invited to telephone the undersigned attorney, or in his absence, Mr. David W. Osborne, at (801) 566-6633, to address such issues as expeditiously as possible.

Please charge any additional fees except for Issue Fee or credit any overpayment to Deposit Account No. 20-0100.

Dated this 22nd day of June, 2006.

Respectfully submitted,

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